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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,477	01/20/2006	Misao Konishi	3716072-00002	9910

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EXAMINER	
NGUYEN, TRI V	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
05/11/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,477	KONISHI, MISAO	
	Examiner	Art Unit	
	TRI V. NGUYEN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-12,14-20,22 and 24-28* is/are pending in the application.

4a) Of the above claim(s) *13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-12,14-20,22,25,26 and 28-30* is/are rejected.

7)☒ Claim(s) *24, 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Upon the amendment filed on 01/29/2010, Claim 13 is withdrawn; Claims 24-30 are added and Claims 1-7, 21, 23 are cancelled. The currently pending claims are Claims 8-20, 22, 24-30

Regarding claims 8-12, 14-20 and 22, applicants' remarks have been carefully considered; however, they are not found persuasive and the rejections are maintained.

Regarding new claims 25, 26, 28-30, a new ground of rejections is presented.

Claims 24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 8, 9, 11, 12, 14, 15, 17-19, 26, 29 are rejected under 35 U.S.C. 103(a) as obvious over Wakiya et al. (WO/2002/035555 - the US equivalent 2004/0109995 is cited from hereon).

Claims 8, 26 and 29: Wakiya et al. disclose a conductive coated particle that includes a metallic core that is surface treated with a carboxyl containing resin that is treated with an aziridine based agent (abstract, § 5-8, 12, 15-18, 30 and examples starting §54). In particular, it is noted that Wakiya et al. teach the component (c) - applicants' arzidine- surrounding the component (a)/(b) in paragraph 38: "introducing the polymerizing or chain-transferring functional group or catalyst moiety (C)-containing compound onto the surface of the metal-surfaced particles is not particularly restricted but may be, for example, the one comprising introducing a

compound having a reactive functional group (B), such as hydroxyl, carboxyl, amino, epoxy, silyl, silanol or isocyanato group, and a functional group (A) capable of binding to the metal onto the metal surface and then reacting the reactive functional group (B) with a compound having a functional group capable of covalent bonding with the reactive functional group (B) and having the polymerizing or chain-transferring functional group or catalyst moiety (C) to thereby effect the introduction of the polymerizing or chain-transferring functional group or catalyst moiety (C)." It is noted that the aziridine component reacts with the carbonyl component during the cross-linking process.

Claims 9, 11, 12, 14, 15, 17, 18 and 19: Wakiya et al. disclose the features of a acrylic-styrene, epoxy and poly(meth)acrylic acid resin (§ 21) and an anisotropic conductive film which is construed to meet the limitation of adhesive (§2).

However, the Wakiya et al. disclosure is insufficient to anticipate the above listed claims such as selection of a specific element, e.g. a functional group or a resin, it would have nonetheless been obvious to the skilled artisan to achieve the synthesis composition, as the reference teaches each of the claimed ingredients for the same utility and such modifications are recognized as being well within the purview of the skilled artisan to yield predictable results.

4. Claims 10, 16, 20, 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiya et al. in view of Soken Chem (JP 08-325543), Mitsubishi (JP 09-030112) or Travis (US 3,985920).

Wakiya et al. disclose the invention of claim 8 but Wakiya et al. do not explicitly disclose the specific aziridine surface treatment. In an analogous art, Soken Chem, Mitsubishi or Travis discloses the features of surface treating a particle with applicants' aziridine compound is well-known (Soken Chem: $42-46), Mitsubishi: § 126, 127 and 139 and Travis: col 3, lines 29-41).

Wakiya et al. invite such enhancement by teaching that the aziridine technique is well known (§ 30). One of ordinary skill in the art would have recognized that applying the known technique of surface treating with an aziridine compound would have yielded predictable results and resulted in an improved system. It would have been recognized that applying the aziridine cross-linking technique to the teachings of Wakiya et al. would have yielded predictable results because the level of ordinary skill in the art demonstrated by the references applied shows the ability to employ such features into similar systems. Further, the use of an aziridine would have been recognized by those of ordinary skill in the art as resulting in an improved composition that would allow for enhanced corss-linking and coupling properties.

5. Claims 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiya et al. in view of Yamada et al. (US 5965064).

Wakiya et al. disclose the invention but Wakiya et al. do not explicitly disclose the thickness of the insulating layer. In an analogous art, given that Yamada et al. teach metal-based electroconductive particles that are entirely coated with an insulation material layer such as acryl and acryl-styrene having a thickness of 0.05 to 2 micrometers (abstract, col 4, lines 39-49 and col 5, lines 14-37), it would have been obvious to a skilled artisan at the time of the invention to prepare a particle with the specific thickness to impart a control of insulation layer properties and behavior.

6. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiya et al. in view of Anderson et al. (US 5466567).

Wakiya et al. disclose the invention but Wakiya et al. do not explicitly disclose the volume loading range. In an analogous art, given that Anderson et al. teach a composition with

a loading of 10 % volume for an electrically-conductive layer (col 11, liens 7-9), it would have been obvious to a skilled artisan at the time of the invention to prepare a particle with the specific loading to impart the beneficial electroconductive feature to the composition.

Allowable Subject Matter

7. Claims 24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The cited references teach the claimed invention but do not teach the specific feature of the carbonyl properties of the insulating layer.

Response to Arguments

8. Applicant's arguments filed 1/29/2010 have been fully considered but they are not persuasive.

Applicants argue that the Wakiya reference is silent with respect to the features of the insulating layer being surface-treated with a polyfunctional aziridine compound since the synthesis steps are different (page 5 et seq.). The examiner notes that the pending claims are directed to a composition instead of method thus the required end-product is a conductive particle having an insulating layer that includes a polymeric component being cross-linked by arizidine. The examiner respectfully disagrees that the cited reference does not teach such feature and notes that Wikiya et al. teach three components - (a), (b) and (c). In paragraphs 36 and 38, Wikiya et al. teach various methods for coating the metal particle that include graphting components (a)/(b) onto the surface and further treating with component (c). In paragraph 30, Wikiya et al. teach that component (c) can be arizidine or methylazetidine. Though the synthesis are not identical to applicants' method, the end-product of the cited reference is an

insulating layer (a)/(b) being treated with an arizidine surrounding a conductive particle. Furthermore, the Soken Chem (JP 08-325543), Mitsubishi (JP 09-030112) or Travis (US 3,985920) references teach that aziridine is used as a crosslinking agent in the art.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRI V. NGUYEN whose telephone number is (571)272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. V. N./
Examiner, Art Unit 1796
May 11, 2010

/Mark Kopec/
Primary Examiner, Art Unit 1796